REMARKS/ARGUMENTS

Reconsideration is requested of all rejections based on 35 U.S.C. 102:

In rejecting all claims under 35 USC 102 examiner has relied on Hasegawa et al. (U.S. 6,643,107).

We thank examiner for pointing out that a number of features of the present invention, that characterize it as novel, have not been explicitly included in the claims. This has now been corrected through amendments to the appropriate claims.

Examiner has rebutted five of the six arguments that we made in response to the first rejection. We now repeat six features of the present invention that we had previously noted are not taught by Hasegawa together with examiner's counter-arguments. In the interests of simplification, we have retained our original numbering and examiner's original lettering:

(1) A A MASK THAT IS NOT NOTCHED BUT HAS UNIFORM WIDTH. As noted previously, since a mask having a uniform width throughout its thickness (which implies no notch) is the norm, it should not be necessary to include such a feature in the claims. However, in deference to examiner, we have amended claims 1, 9, 18, and 25 to explicitly include this limitation.

(2) B THE PRESENT INVENTION MAY BE IMPLEMENTED USING A HARD MASK INSTEAD OF PHOTORESIST. Examiner's argument here is understood. Accordingly, claim 27 has been amended to claim only a hard mask.

(3) C NO MORE THAN 180° SWEEP OF THE ION BEAM RELATIVE TO THE STACK AT ANY GIVEN TIME. Hasegawa teaches **continuous** 360° rotation of the beam relative to the stack. Examiner argues that Hasegawa teaches both an acute and

an obtuse angle of his ion beam within a single 180° sweep. Absent any col./line reference from examiner, it is unclear on what examiner bases this argument. In any case, it does not bear on whether or not Hasegawa's rotation is continuous, as opposed to being limited to a sweep of no more than 180° for any given relative movement between the beam and the stack.

(4) D FORMING BOTH THE UPPER AND LOWER PEDESTALS IN A SINGLE OPERATION, STARTING FROM A LAMINATED SHEET. Hasegawa first forms a single pedestal in a separate operation and then divides it into upper and lower portions. Examiner states that "Hasegawa performs a single milling process to form pedestals each of a different width i.e. a first pedestal of a first pedestal width and a second pedestal of a second pedestal width". Again, examiner has provided no col./line, or similar, reference to back up this statement. Unless such reference is provided, we can only assume that examiner is mistaken.

To back up our position that Hasegawa forms his two pedestals in separate milling operations, we direct examiner to Hasegawa's FIGs. 2 through 5. In FIG. 2, he starts with a laminated sheet, as does the present invention. The topmost layer of said sheet is layer 15a. In FIG. 3 he forms his first pedestal (topmost layer still being 15a). Since a **vertical** ion beam is used, his first pedestal width equals that of the wider portion of notched mask 72. In FIG. 4 he uses mask 72 to protect layer 15a while **depositing** layers 17 and 19. Clearly, he has stopped ion milling in order to do this. In FIG. 5 he uses ion milling at an angle to the surface to form the second pedestal whose topmost layer is B1.

Since the ion milling and deposition steps must be performed using different equipment and since two separate ion milling steps are used, Hasegawa's process cannot guarantee precise alignment between his two pedestals.

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5) VARYING THE SHAPES OF THE UPPER AND LOWER PEDESTALS WITHOUT LOSS OF ALIGNMENT. The present invention achieves this by varying the angle(s) through which the stack is swept during IBE.

Examiner has not responded directly to this argument. We assume that examiner feels that her argument E (see below) covers this.

(6) E THE ANGLE OF THE ION BEAM CHANGES AS IT IS SWEPT ROUND. This feature provides another degree of freedom for controlling the shapes and dimensions of the final pedestals.

In rebuttal, examiner cites col. 29 lines 12-22 and 49-55, as well as FIGs. 2 and 6 arguing that the angle of incidence includes both acute and obtuse angles (implying thereby, we assume, that the ion beam angle must have changed as the work rotated). With respect, the cited text says nothing about the ion beam changing its angle (relative to the stack) at all, let alone from acute to obtuse. We have already discussed (above) what FIGs. 2 through 5 portray. We are unclear as to why examiner has cited FIG. 6 as this illustrates a **deposition** process, not ion milling.

Additionally, examiner states that our claims do not recite that the angle of the beam changes as it is swept around nor do we explicitly recite that the shapes of the pedestals may be varied without loss of alignment. This is correct for claims 1 and 18 which cover the case of a fixed beam angle. However, in view of arguments 1 through 4 above, we continue to maintain that Hasegawa does not teach ALL the features recited in our claim 1 and 18.

Regarding claims 9 and 25, said claims do recite that the beam angle varies as the stack and ream rotate relative to one another. Please see lines 16-19 of claim 9 and lines 21-24 of claim 25 which read as follows (A being the angle of the ion beam):

"wherein, at any given instant in time, A equals B plus an angle whose tangent equals the tangent of B divided by the cosine of C, where B is a fixed angle and C is an angle through which the sheet has rotated at said instant in time, **thereby causing A to vary continuously between a minimum value of B and a maximum value of A plus B.**"

As to examiner's argument that the ability to form pedestals of different shapes without loss of alignment is not explicitly claimed, since said ability is an inevitable consequence of the process of the present invention, it still represents a patentable difference from Hasegawa. Again, in deference to examiner, we have amended claims 9 and 25 to explicitly claim this feature.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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